

1 MCKOOL SMITH HENNIGAN, P.C.
2 Roderick G. Dorman (SB 96908)
3 rdorman@mckoolsmithhennigan.com
4 One California Plaza
300 South Grand Avenue, Suite 2900
Los Angeles, CA 90071
Telephone: (213) 694-1200

5 MCKOOL SMITH, P.C.
6 John B. Campbell (*admitted pro hac vice*)
7 jcampbell@McKoolSmith.com
8 Kevin L. Burgess (*pro hac vice to be filed*)
9 kburgess@McKoolSmith.com
10 Lindsay Martin Leavitt (*admitted pro hac vice*)
11 lleavitt@McKoolSmith.com
12 Matthew B. Rappaport (*admitted pro hac vice*)
13 mrappaport@McKoolSmith.com
14 Andrew D. Whalen (*admitted pro hac vice*)
15 awhalen@McKoolSmith.com
16 McKool Smith, P.C.
300 W. 6th Street, Suite 1700
Austin, Texas 78701
Telephone: (512) 692-8700
Facsimile: (512) 692-8744

17 Richard Kamprath (*admitted pro hac vice*)
18 rkamprath@McKoolSmith.com
19 McKool Smith, P.C.
20 300 Crescent Court, Suite 1500
21 Dallas, Texas 75201
22 Telephone: (214) 978-4210

23 Attorneys for Plaintiff
24 ODYSSEY WIRELESS, INC.
25
26
27
28

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF CALIFORNIA
SAN DIEGO DIVISION

Case No. 3:15-CV-01735-H-RBB

ODYSSEY WIRELESS, INC.,

Plaintiff,

v.

APPLE INC.,

Defendant.

**PLAINTIFF ODYSSEY
WIRELESS, INC.'S OPENING
CLAIM CONSTRUCTION
BRIEF**

ODYSSEY WIRELESS, INC.,

Plaintiff,

v.

SAMSUNG ELECTRONICS CO., LTD.,
ET AL.,

Defendants.

Case No. 3:15-CV-01738-H-RBB

ODYSSEY WIRELESS, INC.,

Plaintiff,

v.

MOTOROLA MOBILITY LLC,

Defendant.

Case No. 3:15-CV-01741-H-RBB

ODYSSEY WIRELESS, INC.,

Plaintiff,

v.

LG ELECTRONICS, INC., ET AL.,

Defendants.

Case No. 3:15-CV-01743-H-RBB

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
II.	DR. KARABINIS INVENTED A COMMUNICATIONS SYSTEM WITH IMPROVED BANDWIDTH.....	1
III.	LEVEL OF ORDINARY SKILL IN THE ART.....	5
IV.	PRINCIPLES OF CLAIM CONSTRUCTION	5
V.	ARGUMENT	5
A.	Because Dr. Karabinis Neither Acted as His Own Lexicographer Nor Disavowed Any Claim Scope for the Disputed Claim Terms, Those Terms Should Be Construed According to Their Plain and Ordinary Meanings.....	5
B.	Defendants’ Proposals Should Be Rejected Because They Conflict With the Claim Language, Import Extraneous Limitations, and Exclude Disclosed Embodiments.....	6
1.	Waveforms are not limited to “pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal waveforms” (claim terms 5, 7–18, 25– 27).	7
a.	Plain and ordinary meaning does not limit waveforms to “pseudo-random, non- cyclostationary, and orthogonal and/or orthonormal waveforms.”	8
b.	Claim differentiation illustrates the asserted claims are not limited to “pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal waveforms.”	9
c.	Limiting the asserted claims to “pseudo- random, non-cyclostationary, and orthogonal and/or orthonormal” waveforms excludes disclosed embodiments.	10

2. Providing frequency content by Fourier transforming a signal is not limited to “identifying the frequency content radiated by other transmitters” (claim terms 1–2, 8–9). 11
 - a. Plain and ordinary meaning does not limit the asserted claims to “identifying the frequency content being radiated by other transmitters.” 11
 - b. Limiting the asserted claims to “identifying the frequency content radiated by other transmitters” imports limitations from certain embodiments. 12
 - c. Limiting the asserted claims to “identifying the frequency content radiated by other transmitters” excludes disclosed embodiments. 12
3. Forming a desired spectrum shape is not limited to “water-filling” or “a power spectral density” (claim terms 3–10, 12). 13
 - a. Plain and ordinary meaning and does not limit forming to “water-filling” or “a power spectral density.” 13
 - b. Limiting the asserted claims to “water-filling” or a “power spectral density” imports limitations from certain embodiments. 15
 - c. Limiting the asserted claims to “water-filling” or “a power spectral density” excludes disclosed embodiments. 16
4. Mapping a symbol sequence $\{I_k\}$ does not require assigning each symbol to a corresponding “one of M ” waveforms “of the waveform alphabet $\{U_1(nT) \dots, U_M(nT)\}$ ” (claim terms 19–24). 17
 - a. Plain and ordinary meaning does not limit assigning each symbol to “one of M ”

1	waveforms “of the waveform alphabet	
2	{U ₁ (nT) . . . , U _M (nT)}.”	17
3	b. Limiting the asserted claims to a single	
4	waveform alphabet “{U ₁ (nT) . . . , U _M (nT)}”	
5	excludes disclosed embodiments.	18
6	5. Transmission of a baseband signal is not limited to	
7	“direct” transmission “without up-conversion”	
8	(claim terms 28–30).	19
9	a. Claim differentiation illustrates the asserted	
10	claims are not limited to “direct”	
11	transmission “without up-conversion.”	19
12	b. Limiting the asserted claims to “direct”	
13	transmission “without up-conversion”	
14	imports limitations from certain	
15	embodiments.	20
16	c. Limiting the asserted claims to “direct”	
17	transmission “without up-conversion”	
18	excludes disclosed embodiments.	21
19	C. Defendants’ Proposals Include Several Other	
20	Miscellaneous Errors.....	21
21	D. No Claim Terms Should “Alternatively” Be Construed	
22	Subject to 35 U.S.C. § 112(6) (claim terms 8–13, 22–24).	23
23	1. Defendants cannot overcome the presumption	
24	against application of 112(6).	24
25	2. Defendants’ identification of structure is	
26	impermissibly narrowed to only certain	
27	embodiments.....	25
28	VI. CONCLUSION	25

TABLE OF AUTHORITIES

Page(s)

Cases

<i>Apple, Inc. v. Motorola, Inc.</i> , 757 F.3d 1286 (Fed. Cir. 2014)	24
<i>Broadcom Corp. v. Emulex Corp.</i> , 732 F.3d 1325 (Fed. Cir. 2013)	6, 11, 13, 17
<i>Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.</i> , 296 F.3d 1106 (Fed. Cir. 2002)	25
<i>Catheter Connections, Inc. v. Ivera Med. Corp.</i> , No. 14-CV-2208-H, 2015 U.S. Dist. LEXIS 148890 (S.D. Cal. May 22, 2015)	5
<i>Daiichi Sankyo Co. v. Apotex, Inc.</i> , 501 F.3d 1254 (Fed. Cir. 2007)	5
<i>e.Dig. Corp. v. Micron Consumer Prods. Grp.</i> , No. 13-CV-2907-H, 2015 U.S. Dist. LEXIS 148886 (S.D. Cal. Feb. 19, 2015)	5
<i>GE Lighting Sols., LLC v. AgiLight, Inc.</i> , 750 F.3d 1304 (Fed. Cir. 2014)	6, 12, 16, 20
<i>Hill-Rom Servs., Inc. v. Stryker Corp.</i> , 755 F.3d 1367 (Fed. Cir. 2014)	5
<i>K-2 Corp. v. Salomon S.A.</i> , 191 F.3d 1356 (1999)	6, 8, 12, 23
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005) (en banc)	<i>passim</i>
<i>Presidio Components, Inc. v. Am. Tech. Ceramics Corp.</i> , No. 14-CV-2061-H (S.D. Cal. July 22, 2015)	5
<i>Source Vagabond Sys. v. Hydrapak, Inc.</i> , 753 F.3d 1291 (Fed. Cir. 2014)	21, 22

1	<i>Thorner v. Sony Computer Entm't Am. LLC,</i>	
2	669 F.3d 1362 (Fed. Cir. 2012)	5, 6
3	<i>Williamson v. Citrix Online, LLC,</i>	
4	792 F.3d 1339 (Fed. Cir. 2015)	24
5	Statutes	
6	35 U.S.C. § 112(6)	23

I. INTRODUCTION

Odyssey Wireless, Inc. (“Odyssey”) respectfully submits this brief on the proper construction of disputed claim terms in related U.S. Patents Nos. 8,199,837 (“’837 patent”) (Ex. C), 7,881,393 (“’393 patent”) (Ex. D), 8,576,940 (“’940 patent”) (Ex. E), 8,660,169 (“’169 patent”) (Ex. F), 8,855,230 (“’230 patent”) (Ex. G), and 8,879,606 (“’606 patent”) (Ex. H) (collectively, the “patents-in-suit”).¹

Defendants raise disputes regarding thirty claim terms, and propose constructions that repeatedly: (1) conflict with the claim language; (2) import extraneous limitations into the claims; and (3) exclude disclosed embodiments. These proposed constructions are improper and should be rejected. Indeed, because a person of ordinary skill in the art understands the plain and ordinary meaning of each of the thirty claim terms at issue, none of the terms require construction. Nevertheless, in an effort to minimize the disputes before the Court, Odyssey proposes constructions that track Defendants’ proposals but excise the portions that improperly contravene fundamental rules of claim construction. These competing proposals are reflected in Exhibit A.

II. DR. KARABINIS INVENTED A COMMUNICATIONS SYSTEM WITH IMPROVED BANDWIDTH

Dr. Peter Karabinis founded Odyssey and invented the patented technology. He earned a Ph.D. in electrical engineering and has thirty-five years of experience in the field of wireless communications working for leading technology companies, including Bell Telephone Laboratories, Raytheon Company, and Ericsson.

Dr. Karabinis’ invention provides important benefits to mobile device users. Videos and high-resolution photos are regularly sent from mobile devices over cellular networks. The ability to send large files from a mobile device is one of the

¹ The specifications of the patents-in-suit have a common disclosure, and because the asserted claims are fully supported by the earliest filed ’837 patent specification, Odyssey cites to this specification throughout this brief.

1 hallmarks of the modern LTE network, allowing for many applications such as
 2 video chat, cloud backup of multimedia, and sharing of high-resolution photos. As
 3 a result, a user's demand for bandwidth can be very high. The amount of time it
 4 takes a user to upload a large file depends on the amount of bandwidth available to
 5 that user. The more bandwidth a user is allocated, the faster the transfer. To satisfy
 6 the ever-growing demand for bandwidth, efficient information transmission
 7 schemes are essential in wireless communications systems.

8 The patents-in-suit teach more efficient information transmission schemes by
 9 increasing the bandwidth in modern wireless communications systems. One
 10 inventive aspect varies the amount of bandwidth allocated to users of a wireless
 11 communications system over time, which allows a wireless communications system
 12 to efficiently allocate bandwidth to users who need it.

13 Another aspect of the invention teaches covert communications, which is
 14 useful for military applications. The patent teaches that covert communications may
 15 make use of non-cyclostationary (non-repeating) waveforms, whereas commercial
 16 (*i.e.*, non-covert) communications may make use of cyclostationary (repeating)
 17 waveforms. Fig. 16 of the '837 patent illustrates these two modes of operation.

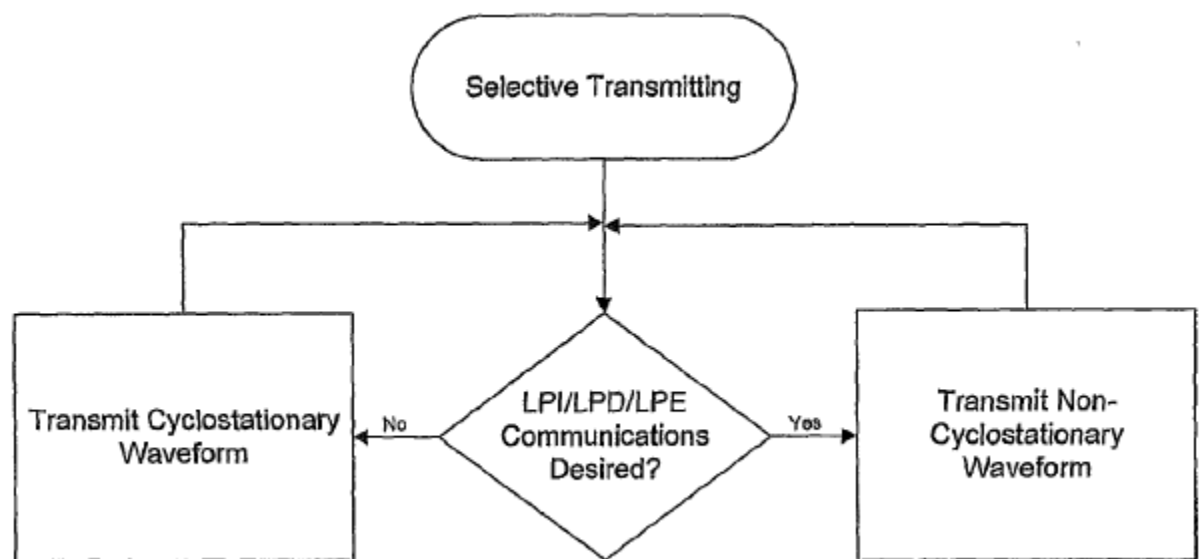
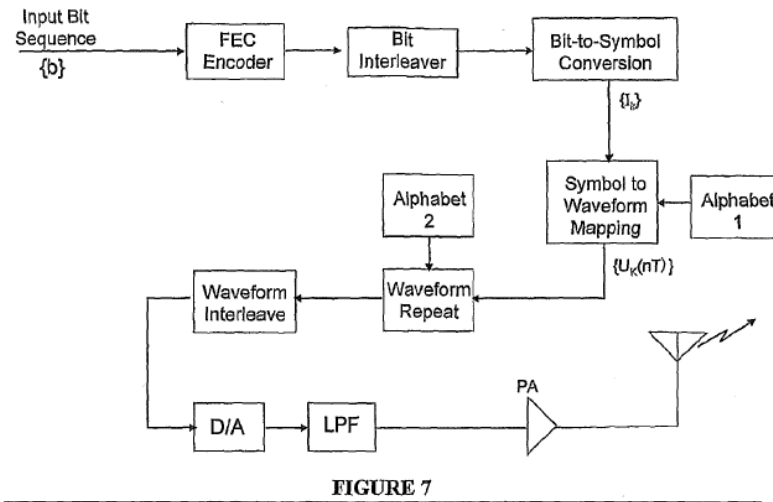


Fig. 7 of the '837 patent depicts one transmitter embodiment for use in a wireless communications system.

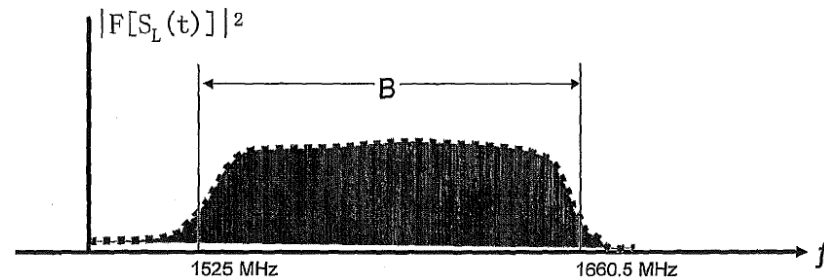


Information is provided in the form of an input bit sequence $\{b\}$ that is encoded, interleaved, and symbol converted into a symbol sequence $\{I_k\}$. Next, each information symbol in the information symbol sequence $\{I_k\}$ is mapped to a corresponding waveform. The waveform is from a set of waveforms known as a waveform alphabet. This generates a waveform sequence $\{U_k(nT)\}$, where each waveform of the waveform sequence conveys some portion of the original input bit sequence. The waveform sequence then undergoes additional signal processing operations before being transmitted. A receiver receives the transmitted waveform and, having knowledge of the waveform alphabet and information symbol-to-waveform mapping, reconstructs the input bit sequence.

An important aspect of the invention is that the waveforms within the waveform sequence $\{U_k(nT)\}$ may have differing bandwidths or may exist over differing frequency ranges. Dr. Karabinis describes this in reference to the “frequency content” of the waveforms and the “spectrum shape” of the waveforms. The frequency content of a waveform is the range of frequencies over which the waveform exists. For example, the first trace from Fig. 8 of the '837 patent

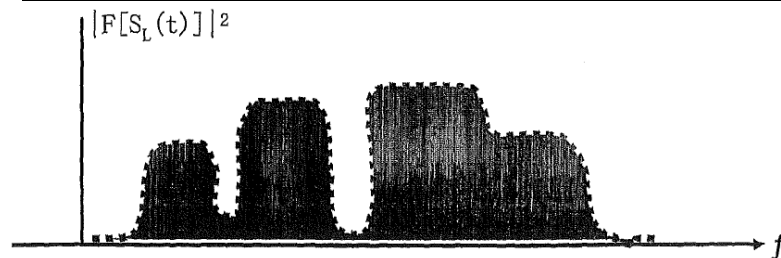
illustrates a waveform with frequency content from about 1525 MHz to about 1660.5 MHz.

Frequency Content, as Displayed in Fig. 8 of the '837 patent

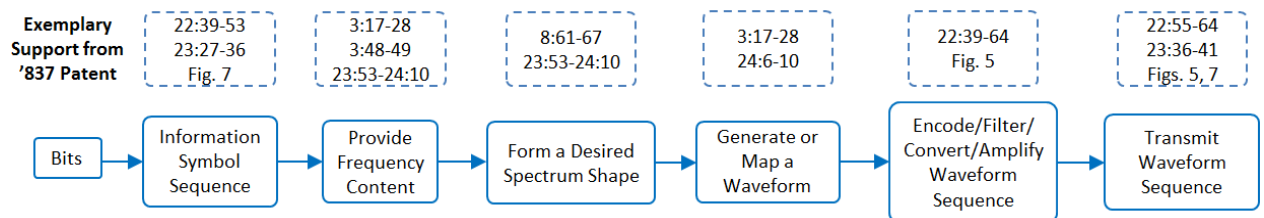


The spectrum shape of the waveform is the collection of frequencies over which the waveform provides content. This is closely related to the frequency content of the waveform—a difference being a spectrum shape may be formed by subtracting out certain frequencies where there would otherwise be frequency content. This is visualized with a plot of a waveform's intensity over different frequencies, as shown in the second trace taken from Fig. 8 of the '837 patent.

Spectral Shape, as Displayed in Fig. 8 of the '837 patent



The patents-in-suit all differ slightly in the scope of their claims. A simplified overview of the process required by the claims across the patents-in-suit is depicted below (though not all asserted claims include each of the blocks depicted).



III. LEVEL OF ORDINARY SKILL IN THE ART

Claim terms are to be construed from the viewpoint of one of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc); *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007) (listing the factors used to determine the level of ordinary skill). Considering all of the *Daiichi* factors in the context of the technology of the patents-in-suit, one of ordinary skill in the art in the relevant time frame would have had a master's degree in electrical engineering with at least two years of experience in the field of wireless telecommunications systems, or equivalent.

IV. PRINCIPLES OF CLAIM CONSTRUCTION

The Court is familiar with the principles of claim construction. *E.g.*, *Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, No. 14-CV-2061-H (S.D. Cal. July 22, 2015); *Catheter Connections, Inc. v. Ivera Med. Corp.*, No. 14-CV-2208-H, 2015 U.S. Dist. LEXIS 148890 (S.D. Cal. May 22, 2015); *e.Dig. Corp. v. Micron Consumer Prods. Grp.*, No. 13-CV-2907-H, 2015 U.S. Dist. LEXIS 148886 (S.D. Cal. Feb. 19, 2015)). Accordingly, and for the sake of brevity, Odyssey addresses the most relevant points of law in its discussion of the issues.

V. ARGUMENT

A. **Because Dr. Karabinis Neither Acted as His Own Lexicographer Nor Disavowed Any Claim Scope for the Disputed Claim Terms, Those Terms Should Be Construed According to Their Plain and Ordinary Meanings.**

Claim terms are given their ordinary meanings as understood by a person of ordinary skill, with two limited exceptions: “1) when a patentee sets out a definition and acts as his own lexicographer; or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution.” *Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014); *see also Thorner v. Sony Computer Entm't Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

1 Dr. Karabinis expressly defined some terms in the specification, but none of
 2 those defined terms relate to the disputed claim terms. *E.g.*, Ex. C ('837 patent) at
 3 16:54–57 (defining “substantially the same”). And Dr. Karabinis was clear that, if
 4 not expressly defined, the claim terms were to be given their plain and ordinary
 5 meaning. *Id.* at 16:33–42. Dr. Karabinis also did not disavow any claim scope in the
 6 specification or during prosecution of the patents-in-suit.

7 Since neither exception to plain meaning applies, all of the disputed claim
 8 terms should be “given their ordinary and customary meanings as understood by a
 9 person of ordinary skill in the art when read in the context of the specification and
 10 prosecution history.” *Thorner*, 669 F.3d at 1365.

11 **B. Defendants’ Proposals Should Be Rejected Because They Conflict**
 12 **With the Claim Language, Import Extraneous Limitations, and**
Exclude Disclosed Embodiments.

13 As explained by the Federal Circuit, “Courts do not rewrite claims; instead,
 14 we give effect to the terms chosen by the patentee.” *K-2 Corp. v. Salomon S.A.*,
 15 191 F.3d 1356, 1364 (1999). The “claims themselves provide substantial guidance
 16 as to the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. And when
 17 considering the ordinary meaning in light of the specification, it “is improper to
 18 read limitations from a preferred embodiment described in the specification—even
 19 if it is the only embodiment—into the claims absent a clear indication in the
 20 intrinsic record that the patentee intended the claims to be so limited.” *GE Lighting*
 21 *Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014). Where multiple
 22 embodiments are taught, a construction that “excludes a [disclosed] embodiment
 23 from the scope of the claim is rarely, if ever, correct.” *Broadcom Corp. v. Emulex*
 24 *Corp.*, 732 F.3d 1325, 1333 (Fed. Cir. 2013) (alteration in original).

25 Defendants’ proposals contain five principal limitations that violate these
 26 fundamental rules of claim construction. As noted, Odyssey contends that no
 27
 28

1 construction of the disputed terms is necessary.² But in an effort to narrow the
 2 disputed issues, Odyssey adopted the acceptable portions of Defendants' proposals,
 3 while maintaining its objections to the improper limitations that Defendants import
 4 into the claims. Exhibit A groups the thirty disputed claim terms based on each of
 5 these five issues.³ Some terms appear in multiple groups as these terms contain
 6 more than one of the five limitations. When the added limitations are removed (and
 7 a few additional miscellaneous errors discussed below are corrected), Odyssey's
 8 constructions do not differ meaningfully from Defendants' proposals.

9 Accordingly, Odyssey's brief focuses on Defendants' error in rewriting the
 10 claims to add these five limitations. As detailed below, the limitations Defendants
 11 propose (1) are inconsistent with the claim language; (2) import limitations from
 12 the specification or other claims; and (3) exclude disclosed embodiments from the
 13 scope of the claimed inventions. These limitations should not be added to the
 14 asserted claims, and Defendants' proposals should be rejected in favor of
 15 constructions that reflect the plain and ordinary meanings of the claim terms.

16 **1. Waveforms are not limited to “pseudo-random, non-**
 17 **cyclostationary, and orthogonal and/or orthonormal**
waveforms” (claim terms 5, 7–18, 25–27).

18 Dr. Karabinis' invention uses or generates waveforms to transmit
 19 information. Certain asserted claims require the use of a waveform sequence, while
 20 others require the use of a waveform alphabet. One of skill in the art knows that a
 21 waveform is the shape of a signal—the shape of an electromagnetic signal that is
 22 transmitted over the air in a wireless communications system. Declaration of
 23 Dr. Mung Chiang in Support of Plaintiff's Opening Claim Construction Brief

24 _____
 25 ² Defendants' proposals are not helpful to the jury, as they do not explain technical
 terms in the claims, but merely add limitations.

26 ³ Exhibit A also provides the parties' construction of each term, highlighting the
 27 added limitations in Defendants' proposals for ease of reference. Claim term
 28 numbers in Exhibit A and this brief correspond to the parties' Joint Claim
 Construction Chart.

(“Chiang Decl.”) at ¶¶ 13–15; Ex. K (Merriam Webster’s Collegiate Dictionary (11th Ed. 2003)) (defining “waveform”).

Defendants’ proposals for claim terms 5, 7–18, and 25–27 limit all waveforms in the invention to waveforms with certain attributes: waveforms that are “pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal.” Ex. A at 1–8. This limitation: (1) is inconsistent with the claim language; (2) adds limitations from other claims; and (3) excludes embodiments of the inventions.

- a. Plain and ordinary meaning does not limit waveforms to “pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal waveforms.”

The plain and ordinary meanings of the claim terms are apparent from the claims themselves and demonstrate the impropriety of the limitations Defendants seek to impose. Take, for example, claim term 15.

#	Term	Odyssey’s Construction	Defendants’ Proposal
15	generating the waveform (’393 Claims 1, 8, 15, 22)	generating a waveform by inverse Fourier transforming the desired spectrum shape	<i>creating a waveform that is one of a set of pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal waveforms</i> by inverse Fourier transforming the desired spectrum shape

The term “generating the waveform” contains three words, none of which require “pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal” waveforms, as Defendants propose. Rather, Defendants change the claim language to include limitations that Dr. Karabinis chose not to use in defining his invention for these claims—impermissibly altering the scope of the claims. *K-2 Corp.*, 191 F.3d at 1364. These limitations are not supported by the claim language.

The claim itself provides a definition: “generating the waveform by inverse Fourier transforming the desired spectrum shape.” Nothing about generating a waveform by inverse Fourier transform necessarily results in a waveform that is “pseudo-random,” “non-cyclostationary,” “orthogonal,” or “orthonormal.” Chiang Decl. at ¶¶ 16–22. An inverse Fourier transform operation takes frequency components as inputs and generates a signal with those frequency components as

1 the constituents thereof—the signal (*i.e.*, the waveform) generated need not have
 2 the limitations Defendants suggest. *Id.*

3 b. Claim differentiation illustrates the asserted claims are not
 4 limited to “pseudo-random, non-cyclostationary, and
orthogonal and/or orthonormal waveforms.”

5 When Dr. Karabinis wished to impart the “pseudo-random,” “non-
 6 cyclostationary,” or “orthogonal and/or orthonormal” attributes to the claimed
 7 waveform, he did so explicitly. This creates the presumption that these attributes do
 8 not limit the other claims. *Phillips*, 415 F.3d at 1315 (“[T]he presence of a
 9 dependent claim that adds a particular limitation gives rise to a presumption that the
 10 limitation in question is not present in the independent claim.”); *id.* at 1314
 11 (explaining that “the claim in this case refers to ‘steel baffles,’ which strongly
 12 implies that the term ‘baffles’ does not inherently mean objects made of steel”).

13 Dr. Karabinis specifically claimed the generation of waveforms “pseudo-
 14 randomly” in dependent claims 7, 10, 18, 21, 30, 38, 41, 54, 57, 67, and 70 of the
 15 ’230 patent (Ex. G); dependent claims 10, 13, 23, 26, 36, 39, 50, and 53 of the ’606
 16 patent (Ex. H); dependent claims 8, 13, 21, 26, 34, 39, 48, 53, 61, 66, 74, and 79 of
 17 the ’169 patent (Ex. F); and dependent claims 8, 17, 28, 33, 42, and 47 of the ’940
 18 patent (Ex. E).

19 Dr. Karabinis specifically claimed non-cyclostationary waveforms in
 20 dependent claims 9, 20, 29, 40, and 69 of the ’230 patent (Ex. G) and dependent
 21 claims 12, 25, 38, and 52 of the ’606 patent (Ex. H). These claims require that the
 22 “the waveform is devoid of a regularly repeating peak amplitude level.” A
 23 waveform devoid of a regularly repeating peak amplitude level is a non-
 24 cyclostationary waveform. Chiang Decl. at ¶¶ 23–25.

25 Dr. Karabinis specifically claimed waveforms with “orthogonality
 26 therebetween” in dependent claims 10, 21, 30, 41, 57, and 70 of the ’230 patent
 27 (Ex. G); dependent claims 13, 26, 39, and 53 of the ’606 patent (Ex. H); dependent
 28

claims 13, 26, 39, 53 66, and 79 of the '169 patent (Ex. F); and dependent claims 9, 18, 33 and 47 of the '940 patent (Ex. E).

The claims of U.S. Patent No. 8,050,337 ("337 patent")—a patent in the same family as the patents-in-suit—further show that waveforms are not limited to only "pseudo-random" and "orthogonal" waveforms. The independent claims of the '337 patent contain such limitations, Ex. I at claims 1 ("pseudo-random" and "orthogonal") and 51 ("orthogonal"), while the asserted claims in the patents-in-suit do not. The examiner on the '337 patent was an examiner on the asserted patents, maintaining continuity throughout the prosecution of the patent family. This further demonstrates that when examining the patents (including the patents-in-suit), the examiner understood that the claimed waveforms were not limited to pseudo-random and/or orthogonal waveforms absent claim language providing such an express limitation. Similarly, two independent claims of U.S. Patent No. 8,670,493 ("493 patent")—another patent in the patent family related to the patents-in-suit—illustrate the same point. Independent claims 1 and 29 of the '493 patent both require "a plurality of waveforms that are orthogonal therebetween," Ex. J, while the asserted claims have no such limitation.

c. Limiting the asserted claims to "pseudo-random, non-cyclostationary, and orthogonal and/or orthonormal" waveforms excludes disclosed embodiments.

Defendants' proposals exclude embodiments of Dr. Karabinis' invention using "cyclostationary waveforms." *E.g.*, Ex. C ('837 patent) at 15:14–15. Some communications systems require transmissions with a "Low Probability of Intercept (LPI), Low Probability of Detection (LPD) and/or Low Probability of Exploitation (LPE)." *Id.* at 1:35–36. These systems are designed for covert military applications that seek to avoid detection. Fig. 16 of the '837 patent illustrates this teaching. As Dr. Karabinis explained, "if LPI/LPD/LPE and/or minimum interference communications are desired, then non-cyclostationary waveforms may be transmitted. However, when LPI/LPD/LPE and/or minimum interference

communications need not be transmitted, cyclostationary waveforms may be used.”
Id. at 15:9–15. Because Defendants’ proposals exclude all embodiments except
 those that are limited to covert communications embodiments, they should be
 rejected.⁴ *Broadcom Corp.*, 732 F.3d at 1333.

2. Providing frequency content by Fourier transforming a signal is not limited to “identifying the frequency content radiated by other transmitters” (claim terms 1–2, 8–9).

Dr. Karabinis’ invention requires providing frequency content for the waveform to be transmitted. Certain asserted claims require providing the frequency content for a waveform by Fourier transforming a signal. A Fourier transform is a well-defined mathematical operation which takes a signal as an input and provides the frequency content that makes up that signal. Chiang Decl. at ¶¶ 16–22; Ex. L (Microsoft Computer Dictionary, Fifth Ed. Microsoft Press, 2002 at 223 “Fourier Transform”).

Defendants’ proposals for claim terms 1–2 and 8–9 limit the providing of frequency content to “identifying the frequency content being radiated by other transmitters.” Ex. A at 9–10. This limitation: (1) conflicts with the claim language; (2) imports extraneous limitations; and (3) excludes disclosed embodiments.

a. Plain and ordinary meaning does not limit the asserted claims to “identifying the frequency content being radiated by other transmitters.”

The “other transmitters” language Defendants propose adds a requirement on the source of the frequency content that is absent from the claims. Claim term 1 is illustrative.

⁴ Defendants’ proposal derives from a distortion of a teaching in the patents-in-suit. The patents-in-suit teach an embodiment in which waveforms *may be* “pseudorandom, non-cyclostationary, orthogonal **and/or** orthonormal.” *E.g.*, Ex. C (’837 patent) at 19:37–39 (emphasis added). Defendants’ proposal changes the position of the “and/or” from this teaching and inserts an additional “and” to arrive at Defendants’ newly created limitations “pseudo-random, non-cyclostationary, **and** orthogonal **and/or** orthonormal waveforms.”

#	Term	Odyssey's Construction	Defendants' Proposal
1.	providing a frequency content for a waveform by Fourier transforming a signal ('393 Claims 1, 8)	providing the frequency content by subjecting the desired band of frequencies to a Fourier transform	<i>identifying</i> the frequency content <i>being radiated by other transmitters</i> by subjecting the desired band of frequencies to a Fourier transform

The claims do not mention “other transmitters,” as they are concerned only with the recited transmitter (or “transmitting”). A Fourier transform is not limited to taking signals from “other transmitters” as inputs. Chiang Decl. at ¶¶ 16–22. Such a limitation impermissibly rewrites the claims. *K-2 Corp.*, 191 F.3d at 1364.

- b. Limiting the asserted claims to “identifying the frequency content radiated by other transmitters” imports limitations from certain embodiments.

Defendants' proposals narrow the scope of the claims to a single embodiment disclosed in Fig. 17 of the '393 patent. The '393 patent, through a continuation-in-part application, teaches “identifying frequency content being radiated by other transmitters” by “subjecting a band of frequencies over which it is desired to transmit information to a Fast Fourier Transform.” Ex. D ('393 patent) at 30:5–10. Limiting “providing a frequency content [for a waveform] by Fourier transforming a signal” to “identifying the frequency content being radiated by other transmitters by subjecting the desired band of frequencies to a Fourier transform,” however, restricts the provision of all frequency content in the claims according to the disclosure of this embodiment, which is impermissible under established case law. *GE Lighting*, 750 F.3d at 1309.

- c. Limiting the asserted claims to “identifying the frequency content radiated by other transmitters” excludes disclosed embodiments.

The “other transmitters” limitation improperly excludes embodiments that fall within the claims. Embodiments leveraging the well-known fact that a Fourier transform operation necessarily provides the frequency content for a waveform do

not require any “other transmitter.” Chiang Decl. at ¶¶ 16–22. For example, Fig. 8 of the ’837 patent (Ex. C) represents the power spectral density (*i.e.*, the frequency content) of the broadband waveforms that are to be *generated*. *Id.* at Fig. 3 and Fig. 8; *id.* at 20:16–19, 23:53–64. This is not the frequency content of “other transmitters.” The specification teaches that the Fig. 8 waveform may be generated by a “single PRWG and a single key.” *Id.* at 20:16–19. A “single PRWG and a single key” is not a transmitter. In other words, the Fig. 8 waveform is not radiated by another transmitter. Limiting the invention to “frequency content being radiated by other transmitters” improperly excludes this embodiment taught by Dr. Karabinis. *Broadcom Corp.*, 732 F.3d at 1333.

3. **Forming a desired spectrum shape is not limited to “water-filling” or “a power spectral density” (claim terms 3–10, 12).**

Certain asserted claims require forming a desired spectrum shape. Defendants’ proposals for claim terms 3–10 and 12 limit the forming of a desired spectrum shape to embodiments requiring “water-filling” or “a power spectral density.” Ex. A at 11–15. Water-filling is an equalization technique that involves the allocation of power to certain frequencies so as to account for channel impairments (*e.g.*, noise) affecting those frequencies. Chiang Decl. at ¶ 27. A power spectral density is a measure of a signal’s power over a frequency range—it is a mathematical representation of the signal in the frequency domain. Chiang Decl. at ¶ 26; Ex. M (The Authoritative Dictionary of IEEE Standards Terms (7th ed. 2000)) (defining a power spectral density as the “mean squared amplitude per unit frequency of a waveform”). Defendants’ limitations: (1) are inconsistent with the claim language; (2) import limitations from the specification; and (3) exclude embodiments of the inventions.

a. Plain and ordinary meaning and does not limit forming to “water-filling” or “a power spectral density.”

The plain and ordinary meaning of the terms that require “forming” is apparent from the claims. *Phillips*, 415 F.3d at 1314 (“[T]he claims themselves

provide substantial guidance as to the meaning of particular claim terms.”). Claim term 4 (“forming at baseband a desired spectrum shape”) is illustrative.

#	Term	Odyssey’s Construction	Defendants’ Proposal
4	forming at baseband a desired spectrum shape (’230 Claim 1, 12)	forming at baseband a spectrum shape	forming at baseband a <i>water-filled</i> spectrum shape <i>or a power spectral density over a range of frequencies that substantially excludes certain frequency intervals in that range from providing frequency content</i>

The term “forming at baseband a desired spectrum shape” contains seven words, none of which require construction. The claim language does not limit the forming of a desired spectrum shape to “water-filling” or “a power spectral density over a range of frequencies.” No aspect of this claim term should be construed because the constituent words of this claim term—“forming,” “baseband,” “desired,” and “spectrum shape,”—all are unambiguous. Rather, the remainder of the claim language defines how the desired spectrum shape is formed:

wherein said forming at baseband a desired spectrum shape comprises:

processing at baseband devoid of chipping with a binary waveform;

using at baseband a first plurality of frequencies to form the desired spectrum shape over a first time interval; and

using at baseband a second plurality of frequencies to form the desired spectrum shape over a second time interval.

Ex. G (’230 patent) at claim 1.⁵

The same holds true for Defendants’ other proposals. In each case, the additional language of the claim that describes how the spectrum shape is formed does not limit the forming of a desired spectrum shape to “water-filling” or “a

⁵ As with all of its constructions, Odyssey provides an alternative construction for this claim term that tracks Defendants’ construction, but simply leaves out the improper limitations Defendants add. Odyssey’s primary position is that no construction is necessary for this claim term. It is *not* Odyssey’s position that the word “desired” should be removed from this claim term as a result of the claim construction process. Forming a “desired” spectrum shape is taught by the patents-in-suit to broadly encompass the inclusion or exclusion of frequencies used or not used by other communications systems. *E.g.*, Ex. D (’393 patent) at 26:38–56.

1 power spectral density over a range of frequencies.” Neither “water-filling” nor
2 “power spectral density” appear in any of the asserted claims.

3 b. Limiting the asserted claims to “water-filling” or a
4 “power spectral density” imports limitations from certain
5 embodiments.

6 Defendants’ proposals narrow the scope of the invention to a single
7 embodiment disclosed in Fig. 17 of the ’393 patent (for “water-filling”) and/or
8 Fig. 8 of the ’837 patent (for “a power spectral density”).

9 The ’393 patent (as well as the ’606 and ’230 patents) are continuation-in-
10 part patents that introduce new matter related to Dr. Karabinis’ Next Generation
11 Chipless Spread-Spectrum Communications (XG-CSSC) system. *E.g.*, Ex. D (’393
12 patent) at 29:12–32:55. The XG-CSSC transmitter, shown in Fig. 17 of the ’393
13 patent, teaches an embodiment that uses a water-filled spectrum shape. *Id.*
14 Numerous claims of the patents-in-suit (as well as claims of patents in the same
15 family but not part of this case) are premised on these XG-CSSC teachings. For
16 example, claims directed to an embodiment that requires “a maximum amplitude
17 value at an output of the inverse Fourier transform be limited in order to reduce
18 non-linear distortion effects” are based on XG-CSSC teachings. *Id.* at 30:23–24
19 (“referring to FIG. 17, the output values of the IFFT may be limited in amplitude”);
20 *id.* at claims 7, 14, 21, and 29; Ex. H (’606 patent) at claims 9, 22, 35, and 49. But
21 the asserted claims do not include limitations related to the XG-CSSC system or the
22 water-filling techniques taught therein.

23 Defendants’ requirement for forming the desired spectrum shape with a
24 power spectral density derives from Fig. 8 of the ’837 patent. This embodiment
25 “illustrates a power spectral density of a broadband waveform” and teaches that
26 certain frequency intervals “may be substantially excluded from providing
27 frequency content.” Ex. D (’393 patent) at 23:53–24:6. The asserted claims do not
28 include limitations related to the power spectral density aspects of the invention.

Defendants' proposals must be rejected, as they restrict the forming of the desired spectrum shape in the claims according to the disclosure of these exemplary embodiments. *GE Lighting*, 750 F.3d at 1309.

c. Limiting the asserted claims to "water-filling" or "a power spectral density" excludes disclosed embodiments.

Defendants' proposals impermissibly exclude disclosed embodiments. One of skill in the art knows that forming a spectrum shape of a waveform means selecting the frequencies over which that waveform is to exist. Chiang Decl. at ¶¶ 28–30. The specification is explicit that the frequencies over which the invention is implemented can be chosen in a variety of ways. Forming a "desired" spectrum shape is broadly disclosed in the patent, even teaching the formation of the spectrum shape in relation to the frequencies used in other communications systems. For example,

According to some embodiments of the present invention, a cellular telecommunications system that is configured to communicate with user devices using communications waveforms in accordance with the transmitter, receiver and/or waveform principles described herein . . . **is using the frequencies of one or more licensed and/or unlicensed bands (also being used by the one or more conventional cellular/PCS systems and/or the one or more other systems).**

Ex. C ('837 patent) at 26:38–47 (emphasis added). As another example,

The cellular telecommunications system may be further configured to provide communications **preferentially using frequencies of the one or more licensed and/or unlicensed bands that are locally not used** substantially and/or are locally used substantially as guardbands and/or transition bands by the one or more conventional cellular/PCS systems.

Id. at 26:47–56 (emphasis added). One of skill in the art understands that the frequencies of the licensed bands used in conventional cellular systems are dictated by regulatory bodies (such as the FCC) that publish information on the use of such frequencies. Chiang Decl. at ¶¶ 28–30. As a result, the above embodiments involve neither water-filling nor a power spectral density to form a desired spectrum shape. Indeed, one of skill knows that the information used to form the desired spectrum shape in these embodiments is publicly available. *Id.* Limiting the invention to

forming a desired spectrum shape by “water-filling” or by using a “power spectral density” improperly excludes the above embodiments taught by Dr. Karabinis. *Broadcom Corp.*, 732 F.3d at 1333.

4. Mapping a symbol sequence $\{I_k\}$ does not require assigning each symbol to a corresponding “one of M” waveforms “of the waveform alphabet $\{U_1(nT) \dots, U_M(nT)\}$ ” (claim terms 19–24).

Certain asserted claims require mapping the information symbol sequence $\{I_k\}$ into a waveform sequence $\{U_k(nT)\}$. Defendants’ proposals for claim terms 19–24 limit the claims by requiring assignment of each symbol to a corresponding “one of M” waveforms “of the waveform alphabet $\{U_1(nT) \dots, U_M(nT)\}$.” Ex. A at 16–17. This limitation is inconsistent with the claim language and excludes disclosed embodiments.

a. Plain and ordinary meaning does not limit assigning each symbol to “one of M” waveforms “of the waveform alphabet $\{U_1(nT) \dots, U_M(nT)\}$.”

Defendants’ proposals impermissibly change the meaning of the claims in two ways. Defendants’ proposals dissolve the association between information symbols and waveforms in the claim language and require a “waveform alphabet” where the claims do not call for such a limitation.

The claims use standard mathematical notation to indicate the index for values within a sequence. Chiang Decl. at ¶¶ 31–37. These index values are indicated with the subscript “k.” Claim term 19 is illustrative.

#	Term	Odyssey’s Construction	Defendants’ Proposal
19	mapping by the processor the information symbol sequence $\{I_k\}$ into a waveform sequence $\{U_k(nT)\}$; (’940 Claim 1)	assigning each symbol in a symbol sequence $\{I_k\}$ to a corresponding waveform in sequence	assigning each symbol in a symbol sequence $\{I_k\}$ to a corresponding one of M waveforms of the waveform alphabet $\{U_1(nT) \dots, U_M(nT)\}$ in sequence

One of skill in the art understands the significance of both the information symbol sequence $\{I_k\}$ and the waveform sequence $\{U_k(nT)\}$ having the same subscript. The subscript is an index, indicating that for each value of $\{I_k\}$ there is a corresponding value of $\{U_k(nT)\}$. *Id.* For example, when $k = 1$, I_1 corresponds to $U_1(nT)$; when $k = 2$, I_2 corresponds to $U_2(nT)$; and so on. As the claims are written, one of skill in the art understands that for each symbol in the symbol sequence $\{I_k\}$ there is a corresponding waveform within the waveform sequence $\{U_k(nT)\}$. *Id.*

The claims implicated by these claim terms do not require a “waveform alphabet.” Though the “waveform alphabet” requirement appears in other claims of the patents-in-suit (*e.g.*, claims 5 and 14 of the ’940 patent and claims 1, 14, 27, 41, 54, and 67 of the ’169 patent), it is absent from the claims at issue here. Though the specification teaches embodiments wherein an information symbol is mapped to a waveform that is within a waveform alphabet, this concept was not claimed by the claims at issue. Likewise, the claims implicated by these claim terms do not have the index variable “M” introduced by Defendants, as this claim limitation is not present in any claim of the patents-in-suit.

b. Limiting the asserted claims to a single waveform alphabet “ $\{U_1(nT) \dots U_M(nT)\}$ ” excludes disclosed embodiments.

Beyond destroying the sub-k to sub-k correspondence of the claims, Defendants’ rewriting of the claim term excludes embodiments disclosed in the specification by requiring each of the symbols of the symbol sequence I_k be mapped to a waveform within a **single** waveform alphabet that has M waveforms. This conflicts with the teaching of the patents-in-suit that in some embodiments different symbols within the symbol sequence I_k may be mapped to waveforms that are in **multiple** different waveform alphabets. Such embodiments are depicted in Fig. 7 of the ’837 patent and are explained in the discussion thereof. *See* Ex. C (’837 patent) at 23:33–52 (“[T]he at least two alphabets of FIG. 7 may be replaced by new alphabets following the transmission of a predetermined number of waveform

symbols.”). The specification teaches, therefore, that the first information symbol in I_k (*i.e.*, I_1) may be mapped to a waveform in a first waveform alphabet (*i.e.*, a first set of waveforms). The second information symbol in I_k (*i.e.*, I_2) may be mapped to a waveform in a second waveform alphabet (*i.e.*, a second set of waveforms). The patents-in-suit further teach that utilizing different waveform alphabets over time is useful, for example when there are changes in the channel state. *Id.* at 22:26–30. Setting aside that Defendants’ proposal rewrites the claims to destroy the sub- k to sub- k correspondence, Defendants’ proposal improperly excludes embodiments of the invention that allow for multiple alphabets.

5. Transmission of a baseband signal is not limited to “direct” transmission “without up-conversion” (claim terms 28–30).

Certain asserted claims require transmitting or radiating “baseband” waveform sequences. Defendants’ proposals for claim terms 28–30 add limitations to these claim terms to require “directly” transmitting these baseband waveforms “without up-conversion.” Ex. A at 18. This limitation: (1) violates the doctrine of claim differentiation; (2) imports limitations from the specification; and (3) excludes embodiments of the inventions.

a. Claim differentiation illustrates the asserted claims are not limited to “direct” transmission “without up-conversion.”

Defendants’ proposals simply add the word “directly” to the beginning of the claim terms and append the words “without up-conversion” to the end of the claim terms. Claim term 30 is illustrative.

#	Term	Odyssey’s Construction	Defendants’ Proposal
30	transmitting the baseband waveform sequence $\{U_k(nT)\}$ (’940 Claims 20, 34)	transmitting the baseband waveform sequence $\{U_k(nT)\}$	<i>directly</i> transmitting the baseband waveform sequence $\{U_k(nT)\}$ <i>without up-conversion</i>

1 When Dr. Karabinis wished to impart the “direct” transmission of waveforms
 2 “without up-conversion,” he did so explicitly in a claim. This creates a presumption
 3 that the limitation is not found in other claims that do not contain this requirement.
 4 *Phillips*, 415 F.3d at 1314–15.

5 One of skill in the art understands that a modulator or frequency translator is
 6 necessary to achieve up-conversion. Chiang Decl. at ¶¶ 38–39. In dependent claims
 7 31 and 45 of the ’940 patent (Ex. E) and dependent claims 11, 24, 51, and 64 of the
 8 ’169 patent (Ex. F), Dr. Karabinis specifically claimed a transmitter “devoid of a
 9 modulator and/or frequency translator” that is “configured to convey information
 10 by transmitting the baseband waveform sequence $\{U_k(nT)\}$ without subjecting the
 11 baseband waveform sequence $\{U_k(nT)\}$ to a modulator and/or frequency
 12 translator.” That limitation is not found in the claims Defendants seek to construe.
 13 As a result, the requirement that a transmitter is “devoid of a modulator and/or a
 14 frequency translator” is a requirement that the transmitter perform “direct”
 15 transmission “without up-conversion.” As such, there is a presumption against the
 16 application of Defendants’ requirements for “direct” transmission “without up-
 17 conversion” in the remaining claims. *Phillips*, 415 F.3d at 1315.

18 b. Limiting the asserted claims to “direct” transmission
 19 “without up-conversion” imports limitations from certain
 20 embodiments.

21 Defendants’ proposals narrow the scope of the invention to the single
 22 embodiment disclosed in Fig. 7 of the ’837 patent, which “illustrates a ‘direct
 23 synthesis’ transmitter in that the transmitter directly synthesizes a waveform that is
 24 to be transmitted, without resorting to up-conversion, frequency translation and/or
 25 carrier modulation functions.” Ex. C (’837 patent) at 24:7–9. It is impermissible to
 26 restrict all claimed transmitting (and radiating) according to the disclosure of this
 27 single exemplary “direct synthesis” embodiment. *GE Lighting*, 750 F.3d at 1309.

- c. Limiting the asserted claims to “direct” transmission “without up-conversion” excludes disclosed embodiments.

Defendants’ proposals exclude other embodiments from the claimed invention. For example, Fig. 5 of the ’837 patent, which is an “illustration of additional functions of a transmitter according to additional embodiments of the present invention,” Ex. C (’837 patent) at 15:41–43, discloses an embodiment that employs a “frequency hop generator & up-converter.” Defendants’ proposals improperly exclude this embodiment.

C. Defendants’ Proposals Include Several Other Miscellaneous Errors.

i. Claim terms 1, 2, 8, and 9: Defendants’ proposals improperly substitute “identifying” for “providing.” “Identifying” is not the same as “providing.” Ex. K (Merriam Webster’s Collegiate Dictionary (11th Ed. 2003)) (defining “identify” and “provide”); *Source Vagabond Sys. v. Hydrapak, Inc.*, 753 F.3d 1291, 1299–300 (Fed. Cir. 2014).

ii. Claim terms 4, 5, 6, 7, 10, and 12: When Dr. Karabinis wished to require the use of a “power spectral density” he did so explicitly. Dr. Karabinis specifically claimed a transmitter “wherein the frequency content is a power spectral density” in dependent claim 28 of the ’337 patent (Ex. I)—a patent in the patent family with the patents-in-suit. The asserted claims have no such limitation, demonstrating the “power spectral density” requirement Defendants propose is improper. *See* Section V.B.3.

iii. Claim terms 4, 6, 10, and 12: Defendants’ proposals improperly limit the claim terms to require “excluding certain frequency intervals.” This limitation is found in certain of the claims implicated by these constructions, but is completely absent from others—demonstrating the impropriety of Defendants’ proposal. Specifically, because claims 1 and 11 of the ’837 patent (Ex. C) and claims 1 and 23 of the ’230 patent (Ex. G) do not recite excluding any frequency intervals, but

1 their dependent claims do, Defendants’ proposals violate the claim differentiation
2 doctrine and must be rejected. *Phillips*, 415 F.3d at 1315.

3 Moreover, Defendants’ proposals exclude embodiments described in the
4 specification that implement the invention over a defined frequency range, “for
5 example, an L-band (e.g., from about 1525 MHz to about 1660.5 MHz)” as shown
6 in Fig. 8, or “any other frequency range and/or interval(s).” Ex. C (’837 patent) at
7 23:55–64. The power spectral density displayed in the first trace of Fig. 8 of the
8 ’837 patent is a continuous range of frequencies, with no frequencies excluded (in
9 contrast with the second trace of Fig. 8 of the ’837 patent, which does exclude
10 certain frequencies from the power spectral density and is the embodiment that
11 Defendants use as the basis for their proposal). In other words, the desired spectrum
12 shape for the embodiment illustrated in the first trace of Fig. 8 was formed within a
13 specified frequency range—not as a result of “excluding certain frequency intervals
14 in a range of frequencies in a power spectral density.”

15 iv. Claim terms 5 and 7: Defendants’ proposals improperly substitute the
16 word “determining” for the word “selecting.” “Determining” is not the same as
17 “selecting.” Ex. K (Merriam Webster’s Collegiate Dictionary (11th Ed. 2003))
18 (defining “determine” and “select”); *Source Vagabond Sys.*, 753 F.3d at 1299–300.
19 The plain meaning of this unambiguous claim language is not so limited.

20 v. Claim terms 5, 9–10, 12–13, and 15–18: Defendants’ proposals improperly
21 substitute the word “creating” for the word “generating.” Ex. K (Merriam
22 Webster’s Collegiate Dictionary (11th Ed. 2003)) (defining “create” and
23 “generate”); *Source Vagabond Sys.*, 753 F.3d at 1299–300. The plain meaning of
24 this unambiguous claim language is not so limited.

25 vi. Claim term 11: Defendants’ proposal construes a collection of disparate
26 portions of claim 58 of the ’230 patent (Ex. G) as part of a single claim term. This
27 is nonsensical. Construing the collection of text Defendants identify confuses the
28

1 meaning of the claim, in particular the treatment of “the second plurality of
2 frequencies.”

3 vii. Claim term 13: Defendants’ proposal improperly removes the claim
4 language “wherein the second plurality of frequencies differs from the first plurality
5 of frequencies in at least one frequency.”

6 viii. Claim term 17: Defendants’ proposal improperly removes the claim
7 language “responsive to the desired spectrum shape.”

8 ix. Claim terms 17 and 18: Defendants’ proposals improperly introduce “a
9 processor that is configured to create” within the claim terms. Claims 1 and 6 of the
10 ’837 patent and claims 1 and 12 of the ’230 patent (all of which are implicated by
11 the claim terms) are method claims that do not call for processors.

12 x. Claim terms 25 and 26: Defendants’ proposals improperly add the
13 limitation “that define a waveform alphabet” to the waveforms recited in these
14 claim terms. Such a limitation impermissibly rewrites the claims. *K-2 Corp.*, 191
15 F.3d at 1364.

16 xi. Claim term 26: Defendants’ proposal for claim term 26 (“waveform
17 sequence $\{U_j(iT)\}$ ”) is untenable on account of its requirement that $\{U_j(iT)\}$ be
18 received when $\{U_k(nT)\}$ is transmitted. The claims do not specify any relationship
19 between $\{U_k(nT)\}$ and $\{U_j(iT)\}$. Such a limitation impermissibly rewrites the
20 claims. *K-2 Corp.*, 191 F.3d at 1364.

21 **D. No Claim Terms Should “Alternatively” Be Construed Subject to**
22 **35 U.S.C. § 112(6) (claim terms 8–13, 22–24).**

23 Defendants suggest that, **as an alternative** to their proposals, certain claim
24 terms be construed as means-plus-function claims according to 35 U.S.C. § 112(6).
25 *See* Ex. A at claim terms 8–13 and 22–24. A means-plus-function claim does not
26 describe structure; it only describes a function to be performed by some unnamed
27 means or apparatus.

1 An inventor is presumed not to have engaged in “means-plus-function”
 2 claiming when the word “means” is absent from the claim. *Williamson v. Citrix*
 3 *Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015). Indeed, “[t]he correct inquiry,
 4 when ‘means’ is absent from a limitation, is whether the limitation read in light of
 5 the remaining claim language, specification, prosecution history, and relevant
 6 extrinsic evidence, has sufficiently definite structure to a person of ordinary skill in
 7 the art.” *Apple, Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1298 (Fed. Cir. 2014). If so,
 8 it is not a means-plus-function claim.

9 **1. Defendants cannot overcome the presumption against**
 10 **application of 112(6).**

11 Since none of the terms at issue contain the word “means,” these claims are
 12 presumed *not* to be means-plus-function claims. Defendants bear the burden of
 13 rebutting the presumption against applying 112(6), *Williamson*, 792 F.3d at 1348,
 14 and they cannot overcome this presumption.

15 The claim language itself makes clear that a device and structure is being
 16 claimed, not some unnamed structure that performs a described function. Consider
 17 claim term 8, for example. The implicated claim requires:

18 a processor that is configured to provide a frequency content for a
 19 waveform by Fourier transforming a signal, to form a desired
 20 spectrum shape for the waveform, that differs from the frequency
 content, responsive to the frequency and to generate the waveform by
 inverse Fourier transforming the desired spectrum shape

21 Ex. D ('393 patent) at claim 15. Defendants alternatively contend this should be
 22 construed under 112(6). However, the very language of the claim calls for “a
 23 processor that is configured” to perform certain tasks. This is not “purely
 24 functional” language. Descriptions of how the processor achieves those tasks are
 25 found throughout the specification in the form of figures and prose. Chiang Decl. at
 26 ¶¶ 40–47. The same analysis holds true across the various terms that Defendants
 27 suggest should be considered under 112(6) in the alternative. As such, Defendants’
 28

1 alternative proposals that certain claims should be afforded treatment under 112(6)
2 should be rejected.

3 **2. Defendants' identification of structure is impermissibly**
4 **narrowed to only certain embodiments.**

5 A proper construction under 112(6) "must include all structure that actually
6 performs the recited function." *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 296
7 F.3d 1106, 1119 (Fed. Cir. 2002). Defendants' proposals in the alternative violate
8 this tenet of claim construction—just as Defendants' other proposals impermissibly
9 exclude embodiments. *See* Sections V.B.1.c; V.B.2.c; V.B.3.c; V.B.4.b; V.B.5.c.
10 Odyssey's alternative proposed structure, should any claim term be identified as
11 subject to 112(6), correctly encompass all structure disclosed in the specification—
12 including, but not limited to, the structure found in the select embodiments
13 Defendants identify. *See* Ex. B. As such, if any claim term is found to be subject to
14 112(6), Odyssey's identification of corresponding structure should be adopted and
15 Defendants' overly narrow proposals should be rejected.

16 **VI. CONCLUSION**

17 For all of the foregoing reasons, Odyssey respectfully requests that the Court
18 adopt its constructions of the disputed claim terms, reflecting the plain and ordinary
19 meaning of those claim terms.
20
21
22
23
24
25
26
27
28

1 DATED: February 25, 2016

Respectfully submitted,

3 MCKOOL SMITH, P.C.

4 By John B. Campbell

5 John B. Campbell

6 Attorney for Plaintiff,
7 ODYSSEY WIRELESS, INC.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and correct copy of the foregoing document has been served on this date to all counsel of record who are deemed to have consented to electronic service via the Court's CM/ECF system per Civ. L.R. 5.4(d). Any other counsel of record will be served by electronic mail, facsimile and/or overnight delivery upon their appearance in this matter.

I declare under penalty of perjury of the laws of the United States that the foregoing is true and correct.

Executed February 26, 2016 at Austin, Texas.

/s/ Matt Rappaport
Matt Rappaport